

L Number	Hits	Search Text	DB	Time stamp
1	2	((("5355283") or ("5249354")).PN.	USPAT; US-PGPUB	2003/10/17 10:21
2	1	("4975761").PN.	USPAT; US-PGPUB	2003/10/17 10:32
3	8111	(BGA or (ball adj grid adj array))	USPAT; US-PGPUB	2003/10/17 10:33
4	0	((BGA or (ball adj grid adj array))) and passive and wire and encapsualting	USPAT; US-PGPUB	2003/10/17 11:56
5	519	((BGA or (ball adj grid adj array))) and passive and wire	USPAT; US-PGPUB	2003/10/17 10:34
6	211	((BGA or (ball adj grid adj array))) and passive and wire ) and encapsulat\$3	USPAT; US-PGPUB	2003/10/17 10:34
7	93	((((BGA or (ball adj grid adj array))) and passive and wire ) and encapsulat\$3) and @ad<20001230	USPAT; US-PGPUB	2003/10/17 11:59
8	1	passive and wire and encapsualt\$3	USPAT; US-PGPUB	2003/10/17 11:59
9	354	passive and wire and bga	USPAT; US-PGPUB	2003/10/17 11:59
10	167	(passive and wire and bga) and @ad<20001230	USPAT; US-PGPUB	2003/10/17 11:59
11	98	((passive and wire and bga) and @ad<20001230) not (((((BGA or (ball adj grid adj array))) and passive and wire ) and encapsulat\$3) and @ad<20001230)	USPAT; US-PGPUB	2003/10/17 11:59

L Number	Hits	Search Text	DB	Time stamp
7	3	passive and wire and bga	EPO; DERWENT	2003/10/17 14:11
8	0	passive and wire and bga	JPO	2003/10/17 14:12
9	1	passive and bga	JPO	2003/10/17 14:12
10	15	passive and bga	EPO; DERWENT	2003/10/17 14:12

DERWENT-ACC-NO: 1999-596928

DERWENT-WEEK: 199951

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TITLE: Passive component arrangement in  
lamination type BGA semiconductor device for CPU module -  
has passive components provided on upper surface  
of laminated circuit board having conducting balls at its  
lower surface

PATENT-ASSIGNEE: SUMITOMO METAL IND LTD[SUMQ]

PRIORITY-DATA: 1998JP-0063111 (March 13, 1998)

PATENT-FAMILY:

PUB-NO	PAGES	PUB-DATE	MAIN-IPC
JP 11260999 A		September 24, 1999	N/A
005	H01L 025/10		

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
JP 11260999A	N/A	
1998JP-0063111	March 13, 1998	

INT-CL (IPC): H01L023/12, H01L025/10 , H01L025/11 ,  
H01L025/18

ABSTRACTED-PUB-NO: JP 11260999A

BASIC-ABSTRACT:

NOVELTY - Laminated circuit boards (1,2) which mount  
semiconductor device (A)  
on upper or lower surface and equipped with conducting  
balls (4) at its lower  
surface. Passive components (B) are provided to upper  
surface of the board  
itself.

USE - In lamination type BGA type semiconductor device for CPU module.

ADVANTAGE - The package density of semiconductor device is improved highly as the passive components are mounted on mother board and case which reduces the overall package size. Hence total cost is also reduced. Noise reduction and high speed operation are also achieved. DESCRIPTION OF DRAWING(S) - The figure shows sectional views of various arrangements of lamination semiconductor device. (1,2) Circuit boards; (4) Conducting balls; (A) Semiconductor device; (B) Passive component.

CHOSEN-DRAWING: Dwg.2/2

TITLE-TERMS: PASSIVE COMPONENT ARRANGE LAMINATE TYPE  
SEMICONDUCTOR DEVICE CPU  
MODULE PASSIVE COMPONENT UPPER SURFACE LAMINATE  
CIRCUIT BOARD  
CONDUCTING BALL LOWER SURFACE

DERWENT-CLASS: U11

EPI-CODES: U11-D01A3; U11-D03C1B;

SECONDARY-ACC-NO:  
Non-CPI Secondary Accession Numbers: N1999-441205